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Stylesheet Version v1.1.1

Claims

[c1] A method to automatically create a three-dimensional nail object, comprising:
starting with a three-dimensional array of data representing a digitized nail surface, and;
measuring key reference points along the X-axis, Y-axis, Z-axis and the periphery of the digitized nail surface, and;
selecting a preexisting preferred finished three-dimensional nail object point array that closely matches the key reference points along the X-axis, Y-axis and Z-axis from a library of pre-created three-dimensional nail object arrays, and;
combining the preferred three-dimensional nail object with the digitized nail surface into a new preferred three-dimensional artificial nail object that conforms to an expected result so that the new generated nail object will fit over the digitized nail surface and create a desired artificial nail appearance.

[c2] The method of Claim 1, wherein starting with a three-dimensional array of data representing a digitized nail surface includes any data that can be used to represent a

three-dimensional object.

[c3] The method of Claim 1, wherein the three-dimensional array of data may be represented as points of data representing an X-axis, Y-axis and Z-axis. The three-dimensional array of data may also include the points defining the periphery of the digitized nail surface.

[c4] The method of Claim 1, wherein measuring key reference points includes determining the measurement value in millimeters or inches of the nail surface along its X-axis, Y-axis and Z-axis; where X-axis represents width, Y-axis represents the length and Z-axis represents depth.

[c5] The method of Claim 1, wherein measuring key reference points includes determining the arc of the digitized nail surface along the X-axis and/or determining the arc of the nail surface along the Y-axis.

[c6] The method of Claim 1, wherein measuring key reference points includes evaluating three-dimensional points along the periphery of the nail surface.

[c7] The method of Claim 1, wherein selecting a preexisting finished three-dimensional array of points resembling a preferred nail object includes using the reference points to select and modify an existing finished nail object array from a library of said arrays, containing many variations

along the X-axis, Y-axis, and Z-axis. The three-dimensional library nail object arrays would appear in every way to be a finished and desired artificial nail object.

[c8] The method of Claim 1, wherein combining the library selected nail object array of points with the digitized nail surface includes aligning the digitized nail surface along the bottom surface of the library selected nail object, inasmuch as anywhere that the digitized nail surface intersects the library selected nail object, the digitized nail surface becomes the bottom surface of the library selected nail object.

[c9] The method of Claim 1, wherein combining the library selected nail object with the digitized nail surface includes removing any points of the library selected object around the periphery points of the digitized nail surface so that the library selected nail object will fit directly on top of the digitized nail surface, and eventually fit the digitized nail surface without any voids or points extending beyond the digitized nail surface.

[c10] The method of Claim 1, wherein the combining of the library selected nail object and the digitized nail surface will form a new preferred three-dimensional artificial nail object.

[c11] The method of Claim 1, wherein the desired nail object in its final state is a customized three-dimensional object representing an artificial nail that is desired, which fits over the digitized nail surface.

[c12] A process to automatically create a three-dimensional nail object, comprising:
starting with a three-dimensional array of data representing a digitized nail surface, and;
measuring key reference points along the X-axis, Y-axis, Z-axis and the periphery of the digitized nail surface, and;
selecting a preexisting preferred finished three-dimensional nail object point array that closely matches the key reference points along the X-axis, Y-axis and Z-axis from a library of pre-created three-dimensional nail object arrays, and;
combining the preferred three-dimensional nail object with the digitized nail surface into a new preferred three-dimensional artificial nail object that conforms to an expected result so that the new generated nail object will fit over the digitized nail surface and create a desired artificial nail appearance.

[c13] The process of Claim 12, wherein starting with a three-dimensional array of data representing a digitized nail

surface includes any data that can be used to represent a three-dimensional object.

[c14] The process of Claim 12, wherein the three-dimensional array of data may be represented as points of data representing an X-axis, Y-axis and Z-axis. The three-dimensional array of data may also include the points defining the periphery of the digitized nail surface.

[c15] The process of Claim 12, wherein measuring key reference points includes determining the measurement value in millimeters or inches of the nail surface along its X-axis, Y-axis and Z-axis; where X-axis represents width, Y-axis represents the length and Z-axis represents depth.

[c16] The process of Claim 12, wherein measuring key reference points includes determining the arc of the digitized nail surface along the X-axis and/or determining the arc of the nail surface along the Y-axis.

[c17] The process of Claim 12, wherein measuring key reference points includes evaluating three-dimensional points along the periphery of the nail surface.

[c18] The process of Claim 12, wherein selecting a preexisting finished three-dimensional array of points resembling a preferred nail object includes using the reference points

to select and modify an existing finished nail object array from a library of said arrays, containing many variations along the X-axis, Y-axis, and Z-axis. The three-dimensional library nail object arrays would appear in every way to be a finished and desired artificial nail object.

[c19] The process of Claim 12, wherein combining the library selected nail object array of points with the digitized nail surface includes aligning the digitized nail surface along the bottom surface of the library selected nail object, inasmuch as anywhere that the digitized nail surface intersects the library selected nail object, the digitized nail surface becomes the bottom surface of the library selected nail object.

[c20] The process of Claim 12, wherein combining the library selected nail object with the digitized nail surface includes removing any points of the library selected object around the periphery points of the digitized nail surface so that the library selected nail object will fit directly on top of the digitized nail surface, and eventually fit the digitized nail surface without any voids or points extending beyond the digitized nail surface.

[c21] The process of Claim 12, wherein the combining of the library selected nail object and the digitized nail surface

will form a new preferred three-dimensional artificial nail object.

[c22] The process of Claim 12, wherein the desired nail object in its final state is a customized three-dimensional object representing an artificial nail that is desired, which fits over the digitized nail surface.

[c23] A computer program to automatically create a three-dimensional nail object, comprising:
starting with a three-dimensional array of data representing a digitized nail surface, and;
measuring key reference points along the X-axis, Y-axis, Z-axis and the periphery of the digitized nail surface, and;
selecting a preexisting preferred finished three-dimensional nail object point array that closely matches the key reference points along the X-axis, Y-axis and Z-axis from a library of pre-created three-dimensional nail object arrays, and;
combining the preferred three-dimensional nail object with the digitized nail surface into a new preferred three-dimensional artificial nail object that conforms to an expected result so that the new generated nail object will fit over the digitized nail surface and create a desired artificial nail appearance.

[c24] The computer program of Claim 23, wherein starting with a three-dimensional array of data representing a digitized nail surface includes any data that can be used to represent a three-dimensional object.

[c25] The computer program of Claim 23, wherein the three-dimensional array of data may be represented as points of data representing an X-axis, Y-axis and Z-axis. The three-dimensional array of data may also include the points defining the periphery of the digitized nail surface.

[c26] The computer program of Claim 23, wherein measuring key reference points includes determining the measurement value in millimeters or inches of the nail surface along its X-axis, Y-axis and Z-axis; where X-axis represents width, Y-axis represents the length and Z-axis represents depth.

[c27] The computer program of Claim 23, wherein measuring key reference points includes determining the arc of the digitized nail surface along the X-axis and/or determining the arc of the nail surface along the Y-axis.

[c28] The computer program of Claim 23, wherein measuring key reference points includes evaluating three-dimensional points along the periphery of the nail surface.

[c29] The computer program of Claim 23, wherein selecting a preexisting finished three-dimensional array of points resembling a preferred nail object includes using the reference points to select and modify an existing finished nail object array from a library of said arrays, containing many variations along the X-axis, Y-axis, and Z-axis. The three-dimensional library nail object arrays would appear in every way to be a finished and desired artificial nail object.

[c30] The computer program of Claim 23, wherein combining the library selected nail object array of points with the digitized nail surface includes aligning the digitized nail surface along the bottom surface of the library selected nail object, inasmuch as anywhere that the digitized nail surface intersects the library selected nail object, the digitized nail surface becomes the bottom surface of the library selected nail object.

[c31] The computer program of Claim 23, wherein combining the library selected nail object with the digitized nail surface includes removing any points of the library selected object around the periphery points of the digitized nail surface so that the library selected nail object will fit directly on top of the digitized nail surface, and eventually fit the digitized nail surface without any voids or

points extending beyond the digitized nail surface.

[c32] The computer program of Claim 23, wherein the combining of the library selected nail object and the digitized nail surface will form a new preferred three-dimensional artificial nail object.

[c33] The computer program of Claim 23, wherein the desired nail object in its final state is a customized three-dimensional object representing an artificial nail that is desired, which fits over the digitized nail surface.